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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/762,060

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Min Chu

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EXAMINER

SHAH, PARAS D

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/762,060	Applicant(s) CHU ET AL.	
	Examiner PARAS SHAH	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4-6, 9, 12-14, 17-24, 29, and 33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,9,12-14,17-24,29 and 33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is in response to RCE with Amendments and Arguments filed on 08/18/2008. Claims 1, 4-6, 9, 12-14, 17-24, 29, and 33 are pending and have been examined with claims 2, 3, 7, 8, 10, 11, 15, 26, 25-28, and 30-32 being cancelled. The Applicants' amendment and remarks have been carefully considered, but they are not persuasive and do not place the claims in condition for allowance.
2. All previous objections and rejections directed to the Applicant's disclosure and claims not discussed in this Office Action have been withdrawn by the Examiner.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/18/2008 has been entered.

Response to Arguments

4. Applicant's arguments (pages 8-16 filed on 08/18/2008 with regard to claims 1-29 have been fully considered but they are moot in view of new grounds for rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1,4, 6, 9, 12, 14, 17, 29, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen *et al.* (US 5,751,905).in view of Huang *et al.* ("Whistler: A trainable Text-to-Speech System", 1996).

As to claims 1, 9, and 29, Chen *et al.* teaches

a speech processing system receiving an input related to one of speech and process the input to provide an output related to one of text (see Figure 6, input into microphone 600, the output of related information would have been obvious to Chen as the system is for use in speech recognition), the speech processing system (see col. 6, lines 26-36) accessing a module (see col. 3, lines 61-col. 4, lines 8, observations used within the toned phoneme system) derived from a phone set having a plurality of phones for a tonal language (see col. 4, lines 41-44, initials with glides and a second part (final)), wherein the tonal language comprises a plurality of different tones with different levels of pitch (see col. 4, lines 31-35, each tone has an associated pitch contour) the phones being used to model syllables used in the module (see col. 6, lines 42-45), the syllables having an initial part and final part (see col. 6, lines 42-45), wherein at least some of the syllables of the tonal language include a glide, the glide being embodied in

the initial part (see col. 4, lines 42-43, glide is grouped with the initial) and wherein the final part comprises a first portion corresponding to a first relative pitch and a second portion corresponding to a second relative pitch, wherein the first portion and the second portion jointly and implicitly carry the tonal information (see col. 4, lines 10-13 and col. 4, lines 42-45, the pitch contour varies with time so the pitch changes relative to the portion of the phone i.e. if the phoneme is associated with a rising pitch contour, such a contour is representing a pitch increasing from a base value).

However, Chen *et al.* does not specifically teach the input being text and the output being speech.

Huang *et al.* does teach the conversion of text to speech from learning methods of model parameters (see Abstract).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the speech processing system taught by Chen et al. and include a text to speech converter taught by Huang et al. The motivation to have included such an element is to have an alternative means for inputting as well as producing a synthesized speech output based upon model parameters of the system (see Huang et al., Abstract) as would benefit the system of Chen et al. by using the tone related information as output speech for producing speech resembling the user.

As to claim 29, Chen in view of Huang teach all of the limitations as in claim 1, above and further teach the computer readable storage medium (see

col. 8, lines 28, multipurpose computer.) The use of a computer readable storage medium is obvious to one skilled in the art.

As to claims 4 and 12, Chen et al. in view of Huang et al. teaches all of the limitations as in claim 1, above.

Furthermore, Chen et al. teaches wherein the different levels of pitch comprises two categorical levels (see col. 4, lines 33-35, five types of tones), and wherein each portion has a categorical level associated with it (see col. 4, lines 10-15, pitch varies with time and represents a pitch contour. The contour consist of different level or values with respect to time) (E.g. Hence, as the pitch varies over the duration of the syllable the use of categorical levels for each portion vary based on the identified tone. For example, rising tone goes from a low to high value (two categorical levels)).

As to claim 6, 14, and 33 Chen *et al.* in view of Huang *et al.* teaches all of the limitations as in claim 1, above.

Furthermore, Chen et al. teaches wherein the different levels of pitch comprises five categorical levels (see col. 4, lines 33-35, five types of tones), and wherein each portion has a categorical level associated with it (see col. 4, lines 10-15, pitch varies with time and represents a pitch contour. The contour consist of different level or values with respect to time).

As to claim 17, Chen *et al.* in view of Huang *et al.* teaches all of the limitations as in claim 1, above.

Furthermore, Chen *et al.* teaches wherein the tonal language comprises Chinese or a dialect thereof, such as Cantonese (see coll. 3, lines 63-64, Mandarin Chinese).

7. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Huang *et al.* as applied to claims 1 and 9 above, and further in view of Akinlabi *et al.* (“tonal Phonology of Yoruba Clitics”).

As to claims 5 and 13, Chen in view of Huang *et al.* teach the phone being associated with a categorical level and the limitations as in claims 1 and 9, above.

However, they do not specifically teach the levels of pitch comprising three categorical levels.

Akinlabi *et al.* teaches three types of tones being associated phonemically (see page 2, sect. 2, lines 1-2).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the speech processing system taught by Chen *et al.* in view of Huang *et al.* with three categorical levels taught by Akinlabi *et al.* The motivation to have included five categorical levels involves the inclusion of other tone languages such as Yoruba, where three tones are present (see Akinlabi *et al.*, page 2, sect. 2, 1st paragraph) as would benefit the teachings of Chen *et al.* to include other tonal languages using tonal information.

8. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen *et al.* in view of Huang *et al.* as applied to claims 1, 9, and 32 above, and further in view of Chen (2) (“Recognize Tone Languages Using Pitch Information on the Main Vowel of Each Syllable”).

As to claims 18 and 19, Chen *et al.* in view of Huang *et al.* teach all of the limitations as in claim 1, above.

However, they do not specifically teach the tonal language comprising Thai and Vietnamese

Furthermore, Chen (2) teaches the tonal language comprising Vietnamese and Thai (see page 4, sect. 7.2, page 4, sect. 7.1).).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the speech processing system taught by Chen *et al.* and Huang *et al.* with Vietnamese as taught by Chen (2)*et al.*. The motivation to have included such language involves the inclusion of other tone languages such as Vietnamese where tonal information is present (see Chen (2) *et al.*, page 4, and sect. 7.1).

9. Claims 20, 21, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen *et al.* in view of Huang *et al.*.

As to claims 20, Chen *et al.* discloses

a speech processing system receiving an input related to one of speech and process the input (see Figure 6, input into microphone 600 , the output of related information would have been obvious to Chen as the system is for use in speech recognition) to provide an output related to one of text and speech processing system (see col. 6, lines 26-36) accessing a module (see col. 3, lines 61-col. 4, lines 8, observations used within the toned phoneme system) derived from a phone set having a plurality of phones for a tonal language (see col. 4, lines 41-44, initials with glides and a second part (final)) comprising a plurality of different tones with different levels of pitch (see col. 4, lines 31-35, each tone has an associated pitch contour), the phones being used to model syllables used in the module (see col. 4, lines 41-44, initials with glides and a second part (final)) and wherein the final part comprises a first portion corresponding to a first relative pitch and a second portion corresponding to a second relative pitch, wherein the first portion and the second portion jointly and implicitly carry the tonal information (see col. 4, lines 10-13 and col. 4, lines 42-45, the pitch contour varies with time so the pitch changes relative to the portion of the phone i.e. if the phoneme is associated with a rising pitch contour, such a contour is representing a pitch increasing from a base value).

However, Chen et al. does not specifically disclose the input being text and the output being speech.

Huang *et al.* does disclose the conversion of text to speech from learning methods of model parameters (see Abstract).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the speech processing system taught by Chen *et al.* to include a text to speech converter as taught by Huang *et al.* The motivation to have included such an element is to have an alternative means for inputting as well as producing a synthesized speech output based upon model parameters of the system (see Huang *et al.*, Abstract) as would benefit the system of Hon *et al.* by using the tone related information as output speech for producing speech resembling the user.

As to claims 21, Chen *et al.* in view of Huang *et al.* teaches all of the limitations as in claim 20, above.

Furthermore, Chen *et al.* teaches wherein the different levels of pitch comprises two categorical levels (see col. 4, lines 33-35, five types of tones), and wherein each portion has a categorical level associated with it (see col. 4, lines 10-15, pitch varies with time and represents a pitch contour. The contour consist of different level or values with respect to time) (E.g. Hence, as the pitch varies over the duration of the syllable the use of categorical levels for each portion vary based on the identified tone. For example, rising tone goes from a low to high value (two categorical levels)).

As to claim 23, Chen *et al.* in view of Huang *et al.* teaches all of the limitations as in claim 20, above.

Furthermore, Chen *et al.* teaches wherein the different levels of pitch comprises five categorical levels (see col. 4, lines 33-35, types of tones), and wherein each portion has a categorical level associated with it (see col. 4, lines 10-15, pitch varies with time and represents a pitch contour. The contour consist of different level or values with respect to time).

As to claim 24, Chen *et al.* in view of Huang *et al.* teaches all of the limitations as in claim 20, above.

Furthermore, Chen *et al.* teaches wherein at least one syllable comprises only the final part having two phones carrying partial tonal information each (see col. 4, lines 14-15 and lines 10-13, lines 31-36, where the second portion comprises one or two phones and the second part contains tone information of the syllable).

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable Chen *et al.* in view of Huang as applied to claims 20 above, and further in view of Akinlabi *et al.* ("Tonal Phonology of Yoruba Clitics").

As to claim 22, Chen *et al.* in view of Huang teaches the phone being associated with a categorical level.

However, they do not specifically disclose the levels of pitch comprising five categorical levels.

Akinlabi *et al.* discloses three tones being associated phonemically (see page 2, sect. 2, lines 1-2).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the speech processing system taught by Chen *et al.* in view of Huang. with three categorical levels as taught by Akinlabi *et al.*. The motivation to have included five categorical levels involves the inclusion of other tone languages such as Yoruba, where three tones are present (see page 2, sect. 2, 1st paragraph) as would benefit the teachings of Hon *et al.* to include other tonal languages using tonal information.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lee *et al.* ("Using Tone Information in Cantonese Continuous Speech Recognition") is cited to disclose Cantonese based continuous speech recognition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PARAS SHAH whose telephone number is (571)270-1650. The examiner can normally be reached on MON.-THURS. 7:00a.m.-4:00p.m. EST.

Art Unit: 2626

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571)272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Paras Shah/
Examiner, Art Unit 2626

10/29/2008

/Patrick N. Edouard/
Supervisory Patent Examiner, Art Unit 2626